

NEXRAD Product Improvement Open Radar Data Acquisition (ORDA) Risk Management Plan (RMP)



NWS Office of Science and Technology

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1. Risk Management Overview

1.1 Introduction

Risk is a normal condition inherent in all engineering activities and can be qualitatively categorized. The two characteristics of a possible risk include the probability of occurrence and the consequences of occurrence. Listed below are the five major processes involved in risk management:

- Planning
- Risk Identification
- Risk Analysis
- Risk Handling
- Risk Monitoring & Reporting

Each of these processes shall be discussed in greater detail in subsequent sections of this Risk Management Plan (RMP). For now, realize that risk is not a problem but an understanding of the likelihood or consequences of potential problems.

1.2 Purpose

The purpose of this plan is to provide guidance for risk identification and mitigation activities on the ORDA program. The processes in this plan include planning for risks, identifying risks, analyzing the risks, handling the risks, and monitoring and reporting the risks. Two main types of risks are present in the ORDA program. These are product risks and programmatic risks. This plan is applicable to both types of risk with the realization that some risks are caused by external influences. The internal technical management risks include those associated with schedules, resources, work flow, on-time deliverables, availability of personnel resources, and adherence to customer constraints and requirements. The internal product risks include the ability to develop, test, and deploy a supportable and maintainable ORDA within the program schedule.

1.3 Scope

This RMP should encompass all areas of potential risk associated with the ORDA program. This includes activities associated with ORDA program activities such as program management, requirement's definition, design, testing, development, deployment, operations and maintenance, and training. The RMP describes how risk identification, analysis, response planning, monitoring and control will be structured and conducted during all phases of the ORDA program. The basic tenants of this RMP are derived from the Defense Systems Management College's, System Engineering Fundamentals Guide, Chapter 15.

2. Risk Management Processes

Risks are managed by the use of a master risk list maintained in the DOORS database. Interaction with this database as part of the risk management process is defined in section 2.5,

Risk Monitoring and Reporting. Each of the high-level processes are further defined in subsequent paragraphs within this section.

2.1 Risk Planning

Risk planning is the continuing process of developing an organized, comprehensive approach to risk management. Initial planning includes establishing a strategy, establishing goals and objectives, a risk assessment, and identifying resources, tasks, and responsibilities to track risks. Therefore, planning for risks is the responsibility of any engineering team. In fact, knowledge of a risk is an opportunity to avoid a problem. The ORDA Project Engineer has ultimate authority for maintaining an effective risk management program and chairs the periodic Risk Management meetings. The contractor PM and staff follow the processes defined in this Risk Management Plan. The contractor PM designates a Risk Management Officer who is responsible for consolidating the current risk list and supporting a monthly Risk Management meeting on the 3rd Thursday of every month or at specified intervals.

2.2 Risk Identification

In a systems engineering environment, risk planning encompasses establishing a method to track risk items with respect to producibility, supportability, testability, and configuration management. Risk management is an essential and integral part of technical program management. All members of the project team must understand the need to pay attention to the existence and changing risks within the ORDA project. They should have an unencumbered method to report risks. The specific method and procedures for reporting ORDA risks are defined in section 2.5 of the RMP. Each risk should be assessed in terms of:

- Identifying the risk/uncertainty
- Quantifying the risk and its impact
- Establishing probability
- Establishing priority

2.3 Risk Analysis

After identifying a risk, a qualitative risk level should be assessed for all categories of risks. When initially submitting a perceived risk into the risk management process, the ORDA project team member completes the risk ID, Status, Description, and Type in the risk list. Later in the risk management process, the Risk Management Team can further assess the perceived risk and assign a risk mitigation strategy or close the risk on a periodic or as-needed basis. Using the Risk Definition Matrix below (See Table 2.1), the Risk Management Team assigns a qualitative risk level and updates the Risk List maintained in DOORS.

P R O B A B I L I T Y	Hi	Moderate	High	High
		Low	Moderate	High
	Low	Low	Low	Moderate
		CONSEQUENCE		

Table 2.1, Risk Definition Matrix

2.4 Risk Handling

Once the risks have been categorized and analyzed, a risk must be handled. Handling a risk involves the assignment of a risk mitigation strategy. There are four distinct and generally accepted methods available to the members of the Risk Management Team (See Appendix A) for handling risks:

2.4.1 Avoidance involves eliminating the requirement that represents the uncertainty in terms of probability or consequence.

2.4.2 Control is the deliberate use of the design process to lower the risk to acceptable levels.

2.4.3 Assumption is the deliberate acceptance of the risk because the probability and/or consequence are low enough to be reasonably accepted.

2.4.4 Transfer involves moving the risk from one area of design to another where the design solution is less risky. For example, the allocation to hardware versus software or visa versa.

2.5 Risk Monitoring and Reporting

Risk monitoring is the continuous process of tracking and evaluating the risk management process using metrics, watch lists, and feedback from anyone involved in the ORDA project or even external agencies assigned to a review role for the project. The following process diagram identifies the high-level activities included in the risk management activity (See Figure 2.1).

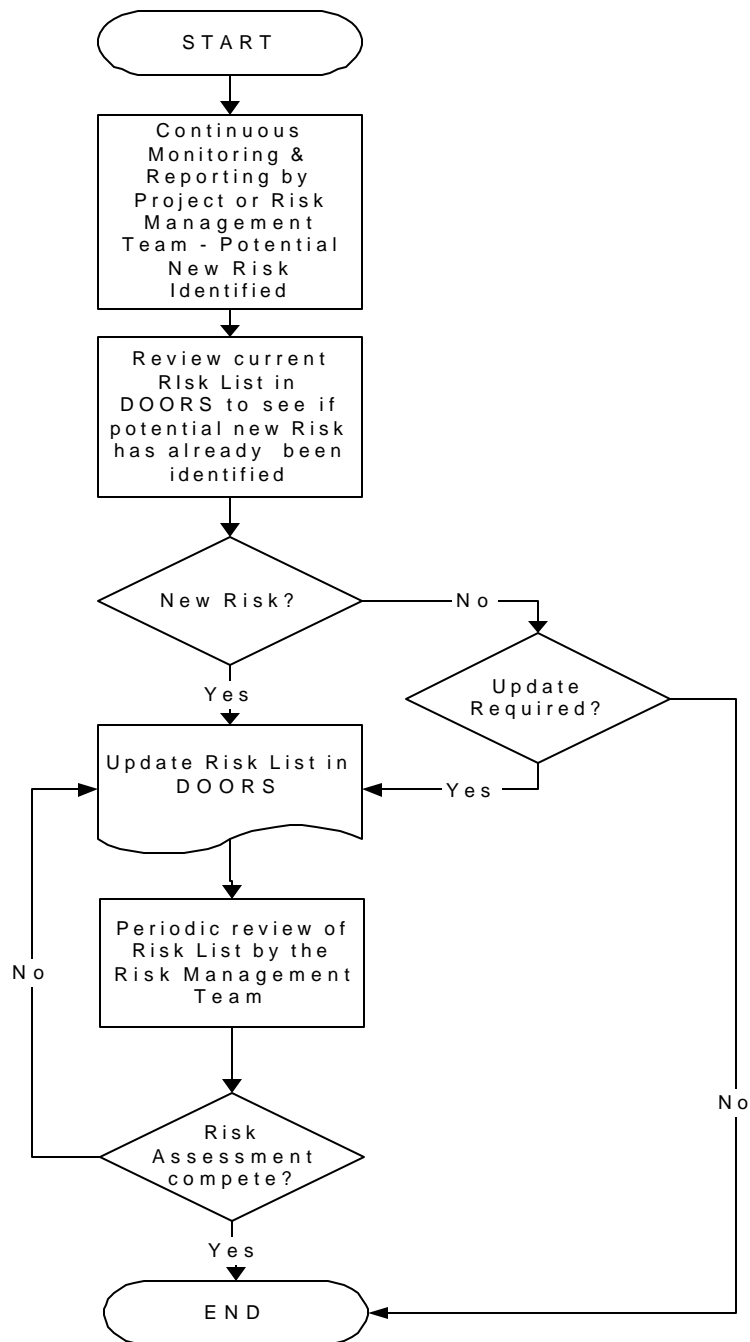


Figure 2.1, Risk Management Process

Appendix A

Risk Management Team Members

Roger Hall	Chairperson/Lead ORDA Project Engineer
Greg Cate	NPI Program Manager
Douglas Martindale	ORDA Software Architect
Jeanne Bohan	ORDA Program Analyst
John Hutchins	Budget Support
Bill Terry	RSIS Program Manager
Lynn Ahpeatone	RSIS Program Control
Robert Macemon	RSIS Lead Systems Engineer
Gae Parrish	RSIS Lead Software Engineer
Rick Rhoton	RSIS Lead Hardware Engineer
Gabriel Jim	RSIS Lead Support Engineer
Roland Leatherman	RSIS Lead Test Engineer & Risk Management Officer
Alan Free	RSIS Systems Engineer
Stephanie Heaps	RSIS Configuration Management
Tim Crum	Radar Operations Center